

Appl. No. 09/980,227
Amdt. dated December 23, 2003
Reply to Office Action of October 6, 2003

AMENDMENTS TO THE CLAIMS

LISTING OF THE CLAIMS

Claims 1-31 were cancelled and new claims 32-62 were presented in the Preliminary Amendment filed March 14, 2002.

New claim 63 was presented in the Amendment filed July 11, 2003.

Please amend claims 32, 33, 50, and 51 as set forth in the following listing of the claims.

Claims 1-31 (canceled)

32. (currently amended) A moulding serving for pharmaceutical uses, the moulding having the form of any one of such as a stopper (1) for pharmaceutical bottles, a protective cap (2) for medical syringes or a sealing element (38, 39) for pharmaceutical containers, the moulding (1, 2, 38, 39, 44) comprising at least in a subregion, a thermoplastic elastomer material with a mineral filler content of at least 30% and said subregion having a hot-runner injection point which is formed as a smooth-surfaced mark; wherein said elastomer is from a class of materials that are moldable by hot runner injection.

Fig. 11 and 14

33. (currently amended) A moulding ~~serving as having the form of any one of~~ a stopper (1) for pharmaceutical bottles, a protective cap (2) for medical syringes or a sealing element (38, 39) for pharmaceutical containers, the moulding (1, 2, 38, 39, 44) comprising in a subregion, a thermoplastic elastomer material with a mineral filler content of at least 30% and said subregion having an injection point, which is injected over by a second part of the moulding, made of another plastic; wherein said elastomer is from a class of materials that are moldable by hot runner injection.

d

34. (previously presented) The moulding according to claim 33, wherein the injection point of the subregion formed from the elastomer material which is flexible, is formed as a hot-runner injection point.

35. (previously presented) The moulding according to claim 34, wherein the hot-runner injection point is formed as a smooth-surfaced mark.

G

36. (previously presented) The moulding according to claim 32, wherein the moulding altogether is made of the elastomer material.

37. (previously presented) The moulding according to claim 32, wherein the hot-runner injection point goes over into the surrounding moulding wall without being offset outwards.

sb 1
8

38. (previously presented) The moulding according to claim 32, wherein a hot-runner injection point offset outwards with respect to a surrounding moulding wall is encapsulated by a plastics part.

sb sp. 2

39. (previously presented) The moulding according to claim 38, wherein the smooth-surfaced mark of the hot-runner injection point goes over into the moulding wall surrounding it in a co-planar manner.

c

40. (previously presented) The moulding according to claim 32, wherein the moulding is of a predominantly thick-walled form.

Q

41. (previously presented) The moulding according to claim 32, wherein in the case of the stopper (1), a stopper top (13) and a stopper collar (14) are formed and wherein there is a central hot-runner injection (A) in a region of the stopper top (13).

fig 4-
6

Fig. u-6

42. (previously presented) The moulding according to claim 41, wherein in case of the stopper, the stopper top (13) has a central region (12) of smaller wall thickness (x) and an edge region (15) of greater wall thickness (y).

Fig. 2-8

43. (previously presented) The moulding according to claim 32, having a form of a protective cap (2) for medical syringes, and wherein the protective cap (2) has a hot-runner injection (A) in a region of a cap hat (18).

CG

44. (previously presented) The moulding according to claim 32, wherein the thermoplastic elastomer material contains a proportion of plasticizers.

Fig. 11-14

45. (previously presented) The moulding according to claim 32, being formed as a sealing element for a pharmaceutical bottle, a central hot-runner injection (A) being provided in an outer surface.

Fig. u-5

46. (previously presented) The moulding according to claim 41, wherein in case of the stopper, a stopper collar (14) has a greater wall thickness (z) than a stopper top (13) in its central region.

47. (previously presented) A protective cap (2) produced in a plastics injection-moulding process for medical syringes, with a solid cap hat (18) and a comparatively thin-walled cap neck (19), wherein the protective cap (2) is made of thermoplastic elastomer material with a mineral filler content of at least 30% or more, there is a hot-runner injection (A) in a region of the cap hat (18), and wherein said elastomer is from a class of materials that are moldable by hot runner injection.

48. (previously presented) The protective cap according to claim 47, wherein the thermoplastic elastomer material contains a proportion of plasticizer.

49. (previously presented) The protective cap according to claim 47, wherein a central hot-runner injection (A) is performed in a region of a tip of the cap hat.

50. (currently amended) A method for producing a moulding, the moulding having the form of any one of ~~serving as~~ a stopper (1) for pharmaceutical bottles, a protective cap (2) for medical syringes or a sealing element (38, 39) for pharmaceutical containers, the method comprising steps of providing, at least in a subregion, a thermoplastic elastomer material with a mineral filler content of at least 30%, and forming said subregion by a hot-runner injection, an injection

point being formed as a smooth-surfaced mark, wherein said elastomer is from a class of materials that are moldable by hot runner injection.

Fig. 11+14
51. (currently amended) A method for producing a moulding ~~serving as having the form of any one of a~~ stopper (1) for pharmaceutical bottles, a protective cap (2) for medical syringes or a sealing element (38, 39) for pharmaceutical containers, the method comprising the steps of providing, in a subregion, from a thermoplastic elastomer material with a mineral filler content of at least 30%, and forming said subregion by injecting through an injection point, which injection point is injected over with another plastic, forming a second subregion of the moulding, wherein said elastomer is from a class of materials that are moldable by hot runner injection.

52. (previously presented) The method according to claim 51, wherein the injecting of the thermoplastic elastomer material is carried out by a hot-runner injection.

53. (previously presented) The method according to claim 52, wherein the injection point of the hot-runner injection is formed as a smooth-surfaced mark.

C 54. (previously presented) The method according to claim 50, wherein the moulding altogether is made of the elastomer material.

S1 55. (previously presented) The method according to claim 54, wherein the hot-run injection point is produced such that it goes over into a surrounding moulding wall without any offset outwards.

C 56. (previously presented) The method according to claim 50, wherein the injection point is produced with an offset outwards with respect to a surrounding moulding wall.

u 57. (previously presented) A method for producing a stopper (1) for pharmaceutical bottles (3), in a plastics injection-moulding process, with a stopper top (13) and a stopper collar (14), the method comprising the steps of providing a thermoplastic elastomer material with at least a 30% admixed mineral filler content, injecting via a central hot-runner injection (A) in a region of a stopper top (13) of the stopper (1), and wherein said elastomer is from a class of materials that are moldable by hot runner injection.

58.. (previously presented) The method according to claim 57, wherein the stopper collar (14) is formed with a greater wall thickness (z) than the stopper top (13) in its central region.

59. (previously presented) The method according to claim 57, wherein the stopper top (13) is formed with a central region of lesser wall thickness (x) and an edge region (15) of greater wall thickness (y).

60. (previously presented) A method for producing a protective cap (2) for medical syringes in a plastics injection-moulding process, with a solid cap hat (18) and a thin-walled cap neck (19), the method comprising the steps of providing a thermoplastic elastomer material with at least a 30% admixed mineral filler content, and injecting via a central hot-runner injection (A) in the region of the cap hat (18), and wherein said elastomer is from a class of materials that are moldable by hot runner injection.

61. (previously presented) A method according to claim 60, wherein the hot-runner injection (A) is performed centrally on the cap hat (18).

62. (previously presented) A method according to claim 60, further comprising steps of adding a proportion of plasticizer to the thermoplastic elastomer material.

63. (previously presented) A method according to claim 57, wherein the central hot runner injection is performed in a region of the stopper top of the stopper of a thick-walled form.